The damage in the wreck of the ferry Estonia turned out to be much bigger than previously thought

By Mirjam Koch ERR.EE 2022-06-20

Last year, researchers at the Estonian Safety Investigation Center thought that the injury on the right side of the wreck of the ferry Estonia was 22 meters long, but now they see that it reaches more than 40 meters. Oil spills from the wreck have also increased.

From 7 June to 16 June, the Estonian Center for Safety Investigation (OJK) and the Swedish Accident Investigation Board (SHK) conducted a photogrammetric survey of the wreck of the ferry Estonia.

According to the head of OJK, Captain Rene Arikas, the extent of deformations is significantly higher than they were detected last year.

"If we thought last year's preliminary research that the injury on the right side is somewhere 4 meters high and 22 meters long, now we see that it is at least 6 meters high and somewhere 40 meters long, more than 40 meters," Arikas told ERR .

"It's a deformation, which means that there are through holes, cracks, bruises, the outer plating is sometimes inwards. Since the damage continues under the hull, we can't see its full extent, but the visible part is in the area of about 40 meters."

Last year, investigators found an injury at the top of the sixth deck of a 155-meter-long ship, but now they also saw various deformations on the seventh deck, such as boat dams broken and injured.

The damage to the starboard side of the stern is transferred from the sixth deck to the seventh and eighth decks throughout the stern deck.

There are no surprises on the bow side. The bow ramp continues to lie in the same place on the seabed, relying in part on the wreck of the ship.

According to Arikas, the wreck with photogrammetry gives a very detailed 3D image. "We see very large and clear deformations, both large and a few millimeters, that we could not detect on a sonar image before."

In addition, the team discovered that oil leaks have increased compared to last year. "Looking at the camera, we saw these little oil bubbles rise to the surface." Investigators also discovered a new leak in the hull.

The wreck is located in the Finnish EEZ and is therefore the responsibility of Finland. According to Arikas, the representatives of the Finnish Border Guard visited the ship for two days to get acquainted with both their work and the information collected.

"In order to start localizing this oil spill now or to prepare for possible larger spills. Looking at the extensive damage we have identified, it cannot be ruled out that the spill could become significantly more serious," said Arikas.

An international team of nearly 40 people took nearly 25,000 photos of the wreck with an underwater remote-controlled robot (ROV). "In order to examine the ship at all, we had to take photos from every angle on every side of the wreck," said Kees Leverenz, a member of the photogrammetry specialist team. This allows you to set the position, dimensions, and shape of objects.

According to Arikas, they should have the preliminary results of the photogrammetric survey by the last week of June.

In parallel with photogrammetry, researchers also conducted marine surveys, such as seabed hydroacoustics, and are now moving forward with ferromagnetics to map the location, mass and shape of metal objects - from the arrival of the ship's visor to sinking. A new public procurement is needed to carry out this study.

"Somewhere in two to three months, we will have a 3D photogrammetric model ready and then we will create an image of the wreck with the correct color gamut, geometry and resolution. , "said Arikas.

"In conclusion, the goal is to compare what we see on the seabed at the moment with what we detect with the digital twin in the simulation," said Arikas. "

"The visibility of the car deck is a bit worse, there are also various debris. Here it is necessary to find a technologically different solution in order to start surveying this car deck now," said Arikas.

According to him, the examination of the car deck is very important, because it is necessary to determine how the cargo was secured, where the cargo secures are, where they were broken and what the position of the doors is.

SHK organized a public procurement contract to find a researcher and signed a contract with the Swedish company Ocean Discover AB. Investigators used the Dutch research ship Vos Sweet, which also laser scanned the wreck.

The researchers plan to publish the final results and conclusions around next spring.

The ferry Estonia sank on its way from Tallinn to Stockholm on September 28, 1994. There were 989 people on board, 852 of whom died.

On September 28, 2020, the Discovery Network unveiled unprecedented footage of a four-meter-diameter hole in the starboard side of a ship in its documentary.